

WHAT IS CLAIMED IS:

1. A device for accessing target tissue within a patient and isolating a body of target tissue from its supporting bed, comprising:

5 an elongated shaft having a distal end, a proximal end and a longitudinal axis;  
an electrosurgical electrode secured to the distal end of the shaft;  
a first electrical conductor extending within the shaft having a distal end electrically connected to the electrosurgical electrode and a proximal end configured to be electrically connected to an electrical power source;  
10 a tissue anchoring mechanism located proximal to the distal end; and  
a side-cutting mechanism having a cutting element configured to be rotated about the longitudinal axis of the shaft and thereby isolate a body of target tissue.

2. The device of claim 1 wherein the cutting element of the side-cutting mechanism is an elongated electrode having a distal end secured distal to the  
15 anchoring mechanism and a proximal end secured proximal to the anchoring mechanism; and a second electrical conductor extending within the shaft having a distal end electrically connected to the elongated electrode and a proximal end configured to be electrically connected to an electrical power source.

3. The device of claim 1, wherein the electrosurgical electrode has a cutting  
20 surface spaced distal to the distal end of the shaft.

4. The device of claim 1 wherein the anchoring mechanism includes a plurality of elongated members configured to expand outwardly from the elongated shaft of the device and to penetrate into target tissue.

5. The device of claim 4 wherein the elongated members of the anchoring mechanism are formed at least in part of electrically conducting material.

6. The device of claim 5 wherein a third electrical conductor extends within the elongated shaft of the device and has a distal end electrically connected to at least one of the elongated members and a proximal end configured to be electrically connected to an electrical power source.

7. The device of claim 5 wherein the elongated members of the anchoring mechanism are metallic wires or ribbons.

8. The device of claim 7 wherein the wires or ribbons are movably mounted to the elongated shaft of the device and have a contracted configuration to facilitate advancement of the device within the patient and a radially expanded configuration to penetrate into target tissue.

9. A method of accessing target tissue at a desired site within a patient and isolating a body of target tissue, comprising:

- a. providing a device of claim 1;
- b. positioning the electrosurgical electrode of the device in contact with the patient's body,
- c. supplying high frequency electrical current to the electrosurgical electrode while advancing the distal end of the device into the patient and through the site of target tissue;
- d. expanding the elongated members of the anchoring mechanism to penetrate the surface of the target tissue in order to fix the device with respect to the target tissue site

e. expanding the cutting element of the side-cutting mechanism into the target tissue; and

f. rotating the cutting element of the side-cutting mechanism about a longitudinal axis of the elongated shaft of the device to form a separated body of target tissue.

10. The method of claim 9, wherein the rotating step comprises a rotation of at least 360°.

11. The method of claim 9, wherein the electrical current supplied to the electrosurgical electrode is at a frequency of about 0.1 MHz to about 10 MHz.

12. The method of claim 9 wherein the electrical current supplied to the electrosurgical electrode is at a frequency of about 0.3 MHz to about 1.5 MHz.

13. The method of claim 9 wherein the electrical current supplied to the electrosurgical electrode is at a frequency of about 0.8 MHz.

14. The method of claim 9 wherein the elongated members of the anchoring mechanism are formed of electrically conducting material and high frequency electrical current is supplied to the elongated members while they penetrate the surface of the target tissue.

15. The method of claim 14, wherein the electrical current supplied to the elongated members of the anchoring mechanism is at a frequency of about 0.1 MHz to about 10 MHz.

16. The method of claim 14 wherein the electrical current supplied to the elongated members of the anchoring mechanism is at a frequency of about 0.3 MHz to about 1.5 MHz.

17. The method of claim 14 wherein the electrical current supplied to the elongated members of the anchoring mechanism is at a frequency of about 0.8 MHz.

18. The method of claim 9 wherein the electrical current supplied to the elongated electrode of the side-cutting mechanism is at a frequency greater than the frequency of the electrical current supplied to the electrosurgical electrode.

19. The method of claim 9 wherein the electrical current supplied to the elongated electrode of the side-cutting mechanism is about 0.1 MHz to about 10 MHz.

20. The method of claim 9 wherein the electrical current supplied to the elongated electrode of the side-cutting mechanism is about 2.5 MHz to about 7.5 MHz.

21. The method of claim 9 wherein the electrical current supplied to the elongated electrode of the side-cutting mechanism is about 5 MHz.

22. The method of claim 9 wherein the elongated electrode is expanded to an arcuate shape and when the elongated electrode is rotated about the axis of the elongated shaft of the device the isolated body of target tissue is substantially in the shape of a spheroid.

23. The method of claim 9 wherein the portion of the device disposed within the patient is withdrawn therefrom while the isolated body of target tissue is fixed to the device by the anchoring mechanism.

24. The method of claim 9 wherein the patient's skin is first cut to expose subcutaneous tissue and then supplying high frequency electrical current to the electrosurgical electrode while the electrosurgical electrode is advanced.

25. An electrosurgical device for obtaining a body of target tissue within a patient, comprising:

an elongated shaft having a distal end, a proximal end and a longitudinal axis;  
an electrosurgical electrode secured to the distal end of the shaft;  
a first electrical conductor extending within the shaft having a distal end  
electrically connected to the electrosurgical electrode and a proximal end configured to  
5 be electrically connected to an electrical power source;  
an anchoring mechanism located proximal to the distal end configured to extend  
outwardly into the target tissue; and  
a side-cutting mechanism having a cutting element configured to be rotated  
about the longitudinal axis of the shaft and thereby isolate a body of target tissue.

10056453.012302  
10 26. A device for performing a lumpectomy on a patient's breast, comprising:  
an elongated shaft having a distal end, a proximal end and a longitudinal axis;  
an electrosurgical electrode secured to the distal end of the shaft;  
a first electrical conductor extending within the shaft having a distal end  
electrically connected to the electrosurgical electrode and a proximal end configured to  
15 be electrically connected to an electrical power source;  
an anchoring mechanism located proximal to the distal end; and  
a side-cutting mechanism having a cutting element configured to be rotated  
about the longitudinal axis of the shaft and thereby isolate a body of target tissue.

20 27. A method of performing a biopsy on target tissue at a desired site within a  
patient, comprising:  
a. providing a device of claim 25;  
b. positioning the electrosurgical electrode of the device in contact with the  
patient's body,

c. supplying high frequency electrical current to the electrosurgical electrode while advancing the distal end of the device into the patient and through the site of target tissue;

d. expanding the elongated members of the anchoring mechanism to  
5 penetrate the surface of the target tissue in order to fix the device with respect to the target tissue site

e. expanding the cutting element of the side-cutting mechanism into the target tissue;

f. rotating the cutting element of the side-cutting mechanism about a  
10 longitudinal axis of the elongated shaft of the device to form a body of target tissue; and

g. withdrawing the biopsy device with the body of target tissue from the patient.

28. The method of claim 27, wherein the rotating step comprises a rotation of at least 360°.

15 29. A method of performing a lumpectomy on a breast of a patient, comprising:

a. providing a device of claim 26;

b. positioning the electrosurgical electrode of the device in contact with the patient's breast tissue,

20 c. supplying high frequency electrical current to the electrosurgical electrode while advancing the distal end of the device into the patient's breast tissue and through the site of target tissue;

d. expanding the elongated members of the anchoring mechanism to penetrate the surface of the target tissue in order to fix the device with respect to the target tissue site

e. expanding the cutting element of the side-cutting mechanism into the target tissue;

f. rotating the cutting element of the side-cutting mechanism about a longitudinal axis of the elongated shaft of the device to form a body of target tissue; and

g. withdrawing the device and the body of target tissue from the patient's breast.

30. The method of claim 29, wherein the rotating step comprises a rotation of at least 360°.

31. The method of claim 9, further comprising the step of retracting the elongated members of the anchoring mechanism before rotating the cutting element of the side-cutting mechanism.

32. The method of claim 14, further comprising the step of retracting the elongated members of the anchoring mechanism before rotating the cutting element of the side-cutting mechanism.

33. The method of claim 27, further comprising the step of retracting the elongated members of the anchoring mechanism before rotating the cutting element of the side-cutting mechanism.

34. The method of claim 29, further comprising the step of retracting the elongated members of the anchoring mechanism before rotating the cutting element of the side-cutting mechanism.

35. The method of claim 33, further comprising the step of expanding the elongated members of the anchoring mechanism before withdrawing the device and the body of target tissue from the patient's breast.

36. The method of claim 34, further comprising the step of expanding the elongated members of the anchoring mechanism before withdrawing the device and the body of target tissue from the patient's breast.

10056453 012302